Amendment under Art. 34PCT (99)

New Claims

1. A sharpening unit (80) for a rotating disk-shaped blade comprising at least one sharpening grinding wheel (81) and a control component sliding axially in a support (93) and moving angularly around its own axis (C-C), means (103, 105, 106) being provided to control the angular movement of said control component in the support, an axial movement of the control component, which transmits said motion to said grinding wheel, corresponding to said angular movement.

2. Sharpening unit (80) as claimed in claim 1, characterized in that: said control component comprises a bushing (89) sliding axially in said support (93) and moving angularly around its own axis (C-C); said grinding wheel is supported coaxially to said bushing; and means (103, 105, 106) are provided to control the angular movement of the bushing in the support, an axial movement of the bushing and therefore of the grinding wheel corresponding to said angular movement.

3. Sharpening unit as claimed in claim 1 or 2, characterized in that a cam mechanism (103, 105) is disposed between the support and said control component to produce axial translation of the control component when it is made to rotate around its own axis.

4. Sharpening unit as claimed in claim 3, characterized in that an actuator (109), which controls the rotatory movement of the control component around its own axis, is associated with said control component.

5. Sharpening unit as claimed in claim 4, characterized in that said actuator is a piston-cylinder actuator.

6. Sharpening unit as claimed in one or more of the claims from 1 to 5, characterized by means to control the contact pressure between the grinding wheel and the disk-shaped blade.

7. Sharpening unit as claimed in claims 5 and 6, characterized in that said means to control the contact pressure comprise means to control the operating pressure of the fluid to operate said piston-cylinder actuator.

8. Cutting machine for cutting elongated products (L), comprising a disk-shaped blade and a sharpening unit according to one or more of the

preceding claims.

9. Cutting machine for cutting elongated products (L), comprising: at least one path for the products to be cut (L); at least one device (3, 5, 9) for feeding the products along said path, according to a direction of feed (fL); an element (17) rotating around a main axis of rotation (A-A); on said rotating element, at least one disk-shaped blade (19A, 19B, 19C) rotating around its own axis of rotation (B-B), said blade being provided with alternate translatory motion, substantially parallel to the direction of feed; characterized in that the disk-shaped blade moves axially in relation to the rotating element during rotation of said rotating element, and in that the translatory movement of the disk-shaped blade is controlled so that it moves in the same direction as the direction of feed of the products to be cut when the blade is engaged in said products to follow the feed of the products during cutting, motion in the opposite direction to the direction of feed of the products being imparted on said blade in a period of time in which the blade is disengaged from said products.

10. Cutting machine as claimed in claim 9, characterized in that said main axis of rotation (A-A) of the rotating element (17) and said axis of rotation (B-B) of the disk-shaped blade are substantially parallel to each other and to the direction of feed of the products to be cut (L).

11. Cutting machine as claimed in claim 9 or 10, characterized in that at least two and preferably three rotating disk-shaped blades are carried on said rotating element.

12. Cutting machine as claimed in one or more of claims 9 to 11, characterized in that each of said disk-shaped blades is carried by a sleeve (59A, 59B, 59C) sliding axially in a corresponding seat (63A, 63B, 63C) of the rotating element (17).

13. Cutting machine as claimed in claim 12, characterized in that a sharpening unit (80) of the respective disk-shaped blade is integral with each of said sleeves, said sharpening unit translating with an alternate motion integral with the corresponding disk-shaped blade.

14. Cutting machine as claimed in one or more of claims 9 to 13, characterized in that each of said blades (19A, 19B, 19C) is operated in its

alternate motion by a common cam component (71; 125).

15. Cutting machine as claimed in claim 14, characterized in that a feeler (67A, 67B, 67C), cooperating directly with said common cam (71), is associated with each of said blades.

16. Cutting machine as claimed in claim 14, characterized in that said common cam (125) transmits movement to the sleeves (59A, 59B, 59C) via respective rocker components (121A, 121B, 121C) supported by said rotating element (17).

17. Cutting machine as claimed in one or more of the claims from 12 to 16, characterized in that each of said sleeves is provided with anti-rotation means (58, 60) which prevent rotation but allow translation of the sleeve around its axis in relation to the rotating element.

18. Cutting machine as claimed in at least claim 13, characterized in that each of said sharpening units comprises at least one grinding wheel (81, 83) that moves from an operating position, in contact with the cutting edge of the respective disk-shaped blade, to a position in which it is not operating, out of contact with said disk-shaped blade.

19. Cutting machine as claimed in at least claim 13, characterized in that each of said sharpening units comprises two grinding wheels (81, 83) for sharpening the two sides of the cutting edge of the respective blade (19A, 19B, 19C).

20. Cutting machine as claimed in claim 19, characterized in that said two grinding wheels each move from a respective operating position, in contact with a respective side of the cutting edge of the respective disk-shaped blade, to a respective position in which it is not operating, out of contact with said disk-shaped blade.

21. Cutting machine as claimed in claim 20, characterized in that said movement to move the grinding wheel or wheels towards or away from the cutting blade is parallel to the axis of the grinding wheel or wheels.

22. Cutting machine as claimed in one or more of the claims from 18 to 21, characterized in that each grinding wheel is carried by a bushing (89) sliding axially in a support (93) integral with the sleeve (59A, 59B, 59C) of the respective blade (19A, 19B, 19C).

23. Cutting machine as claimed in claim 22, characterized in that said bushing (89) moves angularly around its own axis (C-C) coinciding with the axis of rotation of the grinding wheel.

24. Cutting machine as claimed in claim 23, characterized in that a cam mechanism (103, 105), which produces axial translation of the bushing when said bushing is made to rotate around its own axis, is disposed between said support (93) and the bushing (89).

25. Cutting machine as claimed in one or more of the claims from 22 to 24, characterized in that an actuator (109), which controls the rotary movement of the bushing around its own axis, is associated with each of said bushings.

26. Cutting machine as claimed in at least claim 22, characterized in that said bushing has a helical groove (103) in which a small wheel (105) integral with said support (93) engages.

27. Cutting machine for cutting elongated products (L), comprising: at least one path for the products to be cut (L); at least one device (3, 5, 9) for feeding the products along said path, according to a direction of feed (fL); an element (17) rotating around a main axis of rotation (A-A); on said rotating element, at least one disk-shaped blade (19A, 19B, 19C) rotating around its own axis of rotation (B-B), said blade being provided with alternate translatory motion parallel to its own axis during rotation of said rotating element, substantially parallel to the direction of feed (); characterized in that each of said blades (19A, 19B, 19C) is operated in its alternate motion by a common cam component (71; 125).

28. Machine as claimed in claim 27, characterized in that said common cam component is substantially fixed.